Proposed Changes for QDM 4.2

HL7 CQI WG Meeting

June 5, 2015
## Proposed Updates for QDM

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Approved</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Re-specify “Diagnosis” data types [QDM-103, QDM-41]</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Enhance support for encounter diagnoses [QDM-106]</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Re-specify “Diagnosis, Family History” data type [QDM-107]</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Re-specify “Symptom” data types [QDM-115]</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Add “Immunization” data types [QDM-87]</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Add reference range attributes to “Laboratory Test, Performed” [QDM-114]</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Remove patient / provider preference attributes from all data types [QDM-108]</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Remove “negation rationale” from inappropriate data types [QDM-109]</td>
<td></td>
</tr>
</tbody>
</table>

**NOTE:** These proposed changes have been accepted by the Quality Data Model User Group but have not yet been approved by the QDM’s governing body (MCCB).
QDM-103: Re-specify Diagnosis data types

- QDM defines four Condition/Diagnosis/Problem datatypes
  - Diagnosis, Active
  - Diagnosis, Inactive
  - Diagnosis, Resolved
  - Diagnosis, Family History

- Issues discussed and/or addressed in the proposed solution
  - **Specificity**: Diagnoses vs. conditions vs. problems
  - **State**: Issues w/ state representation, ambiguity of *Inactive*
  - **DateTimes**: Datetime attribute definitions don’t match intent/practice
  - **Ordinality**: Principal ordinality isn’t tied to an encounter
  - **Family History**: Family history is not really a *diagnosis*
Proposed Definition: Diagnosis

A *diagnosis* represents a practitioner’s identification of a patient’s disease, illness, injury, or condition. A practitioner determines the *diagnosis* by means of examination, diagnostic test results, patient history, and/or family history. *Diagnoses* are usually considered unfavorable, but may also represent neutral or favorable conditions that affect a patient’s plan of care (e.g., pregnancy).

The QDM does not prescribe the source of *diagnosis* data in the EHR. *Diagnoses* may be found in a patient’s problem list, encounter diagnosis list, claims data, or other sources within the EHR. The preferred terminology for diagnoses is SNOMED-CT, but diagnoses may also be encoded using ICD-9/10.

The *Diagnosis* datatype should not be used for *differential diagnoses* or *rule-out diagnoses* (neither of which are currently supported by the QDM).
Proposed Diagnosis data type

- **Diagnosis** *(consolidates Active / Resolved data types, retires Inactive data type)*
  - **onset datetime** *(replaces start datetime)*
    - the estimated or actual date/time that the diagnosis/problem began
  - **abatement datetime** *(replaces stop datetime)*
    - the estimated or actual date/time that the diagnosis/problem resolved or went into remission
  - **anatomical location site**
    - the anatomical location where the diagnosis/problem manifests itself
  - **severity**
    - the subjective assessment of the severity of the diagnosis/problem
  - **laterality** *(removed in favor of pre-coordinated anatomical location site)*
  - **ordinality** *(removed in favor of new encounter diagnosis solution)*
  - **negation rationale** *(removed as inappropriate)*
  - **patient preference** *(removed as inappropriate)*
  - **provider preference** *(removed as inappropriate)*
Diagnosis Examples

Before:
"Diagnosis, Resolved: Myocardial Infarction"
starts before or during "Encounter, Performed: Office Visit"

After:
"Diagnosis: Myocardial Infarction"
ends before "Encounter, Performed: Office Visit"

Before:
- Union of
  - "Diagnosis, Active: All Cancer"
  - "Diagnosis, Inactive: All Cancer"
  - "Diagnosis, Resolved: All Cancer"
- starts before or during "Measurement Period"

After:
"Diagnosis: All Cancer" starts before end of "Measurement Period"

Addresses all identified issues with current representation
Clarifies and simplifies the representation of diagnoses
Affects most MU-2 measures, QDM-based HQMF IG, and QRDA
**QDM-106: Enhance support for encounter diagnoses**

- Add coded attributes to Encounter, Performed:
  - **diagnosis**
    - a coded diagnosis/problem addressed during the encounter
  - **principal diagnosis**
    - the coded diagnosis/problem established after study to be chiefly responsible for occasioning the admission of the patient to the hospital for care

Before:

"Diagnosis, Active: Asthma (ordinality: Principal)"
starts during "Encounter, Performed: Inpatient"

After:

"Encounter, Performed: Inpatient (principal diagnosis: Asthma)"

States intent in a clear and concise manner
More accurate than previous approach using timing relationships
Affects most MU-2 measures, QDM-based HQMF IG, and QRDA
QDM-107: Re-specify Diagnosis, Family History

- **Family History** *(replaces Diagnosis, Family History)*
  - **relationship** *(new)*
    - the relationship of the family member to the patient
  - **onset age** *(new)*
    - the estimated or actual age in years of the family member when the diagnosis/problem began
  - **recorded datetime** *(replaces start datetime and stop datetime)*
    - the date/time the family history entry was recorded
  - **ordinality** *(removed as irrelevant and problematic)*
  - **status** *(removed as irrelevant and problematic)*
  - **severity** *(removed as irrelevant and unlikely to be captured)*
  - **negation rationale** *(removed as inappropriate)*
  - **patient preference** *(removed as inappropriate)*
  - **provider preference** *(removed as inappropriate)*

Clarifies concept and improves meaningfulness

Affects CMS 61, CMS 64, QDM-based HQMF IG, and QRDA
QDM-115: Re-specify “Symptom” data types

- **Symptom** *(consolidates Active / Resolved data types, retires Inactive / Assessed data types)*
  - **onset datetime** *(replaces start datetime)*
    - the estimated or actual date/time that the symptom began
  - **abatement datetime** *(replaces stop datetime)*
    - the estimated or actual date/time that the symptom resolved or went into remission
  - **severity**
    - the subjective assessment of the severity of the symptom
  - **ordinality** *(removed as inappropriate)*
  - **negation rationale** *(removed as inappropriate)*
  - **patient preference** *(removed as inappropriate)*
  - **provider preference** *(removed as inappropriate)*

Follows same approach as Diagnosis consolidation

Clarifies and simplifies the representation of symptoms

Affects QDM-based HQMF IG and QRDA (not used in any MU-2 measures)
QDM-87: Add Immunization data types

- **Immunization Administered**
  - reported *(new, if feasible)*
    - indicates if the immunization was directly administered or reported
  - dose
  - route
  - reason
  - start datetime
  - stop datetime
  - negation rationale

- **Immunization Order**
  - dose
  - route
  - reason
  - active datetime
  - signed datetime
  - start datetime
  - stop datetime
  - negation rationale

- **Immunization Allergy**
  - reaction
  - start datetime
  - stop datetime

- **Immunization Intolerance**
  - reaction
  - start datetime
  - stop datetime

Clarifies intent and provides better alignment w/ HL7 standards

Affects CMS 117, CMS 127, CMS 147, QDM-based HQMF IG, and QRDA
QDM-114: Add reference range attributes to “Laboratory Test, Performed”

- Add new attributes to Laboratory Test, Performed:
  - reference range low
    - the low bound (inclusive) of values that are considered “normal”
  - reference range high
    - the high bound (inclusive) of values that are considered “normal”

- Supported by most UG participants, but some concerns were raised
  - Ranges are reported by laboratories, but might not be discrete data
  - Introduces opportunity for error (use more specific LOINC codes instead)

Needed by CCDE for Risk Adjustment of Hospital-Level Outcome Measures

Supported by FHIR, C-CDA, and QRDA Cat 1 already

Affects QDM-based HQMF IG
QDM-108: Remove patient / provider preference attributes from all data types

- **Patient Preference**
  - “Choices made by patients relative to options for care or treatment (including scheduling, care experience, and meeting of personal health goals) and the sharing and disclosure of their health information.”

- **Provider Preference**
  - “Choices made by care providers relative to options for care or treatment (including scheduling, care experience, and meeting of personal health goals).”

- **Remove patient / provider preference from all QDM data types**
  - In practice, meanings are often ambiguous when applied to data types
  - Use cases for quality measurement have been difficult to find
  - Not used in any current MU-2 measures

Reduces complexity, ambiguity, and “noise” from the QDM specification
Affects QDM-based HQMF IG and QRDA (not used in any MU-2 measures)
QDM-109: Remove “negation rationale” from inappropriate data types

Negation Rationale
  – “Indicates the reason that something did not occur or was not done.”

Only support “negation rationale” for action-based data types

- Communication: From Patient to Provider
- Communication: From Provider to Patient*
- Communication: From Provider to Provider*
- Device, Applied*
- Device, Order*
- Device, Recommended
- Diagnostic Study, Order*
- Diagnostic Study, Performed*
- Diagnostic Study, Recommended
- Encounter, Order
- Encounter, Performed
- Encounter, Recommended
- Functional Status, Order
- Functional Status, Performed
- Functional Status, Recommended
- Immunization, Administered
- Immunization, Order
- Intervention, Order*
- Intervention, Performed*
- Intervention, Recommended
- Laboratory Test, Order*
- Laboratory Test, Performed*
- Laboratory Test, Recommended
- Medication, Administered*
- Medication, Dispensed
- Medication, Order*
- Physical Exam, Order
- Physical Exam, Performed*
- Physical Exam, Recommended
- Procedure, Order
- Procedure, Performed*
- Procedure, Recommended
- Risk Category/Assessment*
- Substance, Administered
- Substance, Order
- Substance, Recommended
- Transfer From
- Transfer To

Clarifies meaning, reduces ambiguity and “noise” from the QDM specification
Affects QDM-based HQMF IG and QRDA

* Indicates “negation rationale” is used in at least one MU-2 measure
Backup
Why One Diagnosis Data Type?

- Distinction between *Problem* and *Diagnosis* is unclear
  - Best distinguishing factors are *source of data* and *code system*
    - *Problems* come from *problem list* and use *SNOMED-CT*
    - *Diagnoses* come from *encounter diagnosis list* and use *ICD-9/10*

- Distinguishing factors go *against* the goals of QDM and eCQM
  - QDM and eCQMs should be *source-agnostic*
    - authors shouldn’t care where the data is stored in the EHR
    - EHR data organization / sources may change over time
  - QDM and eCQMs should prefer *clinical* (not administrative) data
    - ICD-9/10 is focused on administrative/billing domain
    - Diagnoses may use ICD-9/10 today, but trend is toward SNOMED-CT

- It is unclear what problem is actually solved by separate data types
Why One Diagnosis Data Type?

- Separate datatypes complicate source-agnostic measures
  - Requires two parallel data elements: Diagnosis and Problem
  - Requires two parallel value sets: ICD-9/10 and SNOMED-CT

- Continuing with a single representation is less disruptive
  - Authors and implementers are familiar with this model
    - They already understand its challenges (and know how to accommodate)
    - Less significant impact on existing measures and implementations

- Other communities affirm the notion of a single representation
  - FHIR / Patient Care community has one resource: Condition
  - OpenEHR CKM community has one archetype: Problem/Diagnosis
  - Clinicians often treat problem and diagnosis interchangeably
QDM-87: Add Immunization data types

- QDM represents immunizations using Medication datatypes
  - QRDA Cat I supports this via a workaround (*nullFlavor* / *translation*)
    - Causes “misalignment” with C-CDA R2

- C-CDA R2 distinguishes between Medication and Immunization
  - Medication Activity (*using RxNorm codes*)
  - Immunization Activity (*using CVX codes*)

- FHIR distinguishes between Medication and Immunization
  - Medication, MedicationPrescription, MedicationAdministration, MedicationDispense, MedicationStatement
  - Immunization, ImmunizationRecommendation
QDM-108: Patient / Provider Preference

- Care Goal
- Communication: From Patient to Provider
- Communication: From Provider to Patient
- Communication: From Provider to Provider
- Device, Adverse Event
- Device, Allergy
- Device, Applied
- Device, Intolerance
- Device, Order
- Device, Recommended
- Diagnosis, Active
- Diagnosis, Family History
- Diagnosis, Inactive
- Diagnosis, Resolved
- Diagnostic Study, Adverse Event
- Diagnostic Study, Intolerance
- Diagnostic Study, Order
- Diagnostic Study, Performed
- Diagnostic Study, Recommended
- Encounter, Active
- Encounter, Order
- Encounter, Performed
- Encounter Recommended
- Functional Status, Order
- Functional Status, Performed
- Functional Status, Recommended
- Intervention, Adverse Event
- Intervention, Intolerance
- Intervention, Order
- Intervention, Performed
- Intervention, Recommended
- Laboratory Test, Adverse Event
- Laboratory Test, Intolerance
- Laboratory Test, Order
- Laboratory Test, Performed
- Laboratory Test, Recommended
- Medication, Active
- Medication, Adverse Effects
- Medication, Administered
- Medication, Allergy
- Medication, Discharge
- Medication, Dispensed
- Medication, Intolerance
- Medication, Order
- Patient Care Experience
- Physical Exam, Order
- Physical Exam, Performed
- Physical Exam, Recommended
- Procedure, Adverse Event
- Procedure, Intolerance
- Procedure, Order
- Procedure, Performed
- Procedure, Recommended
- Provider Care Experience
- Risk Category/Assessment
- Substance, Administered
- Substance, Adverse Event
- Substance, Allergy
- Substance, Intolerance
- Substance, Order
- Substance, Recommended
- Symptom, Active
- Symptom, Assessed
- Symptom, Inactive
- Symptom, Resolved
- Transfer From
- Transfer To
QDM-109: Negation Rationale

- **Care Goal**
- Communication: From Patient to Provider
- Communication: From Provider to Patient
- Communication: From Provider to Provider
- Device, Adverse Event
- Device, Allergy
- Device, Applied
- Device, Intolerance
- Device, Order
- Device, Recommended
- Diagnosis
- Diagnosis, Family History
- Diagnostic Study, Adverse Event
- Diagnostic Study, Intolerance
- Diagnostic Study, Order
- Diagnostic Study, Performed
- Diagnostic Study, Recommended
- Encounter, Active
- Encounter, Order
- Encounter, Performed
- Encounter, Recommended
- Functional Status, Order
- Functional Status, Performed
- Functional Status, Recommended
- Immunization, Administered
- **Immunization, Allergy**
- Immunization, Intolerance
- Immunization, Order
- Intervention, Adverse Event
- Intervention, Intolerance
- Intervention, Order
- Intervention, Performed
- Intervention, Recommended
- Laboratory Test, Adverse Event
- Laboratory Test, Intolerance
- Laboratory Test, Order
- Laboratory Test, Performed
- Laboratory Test, Recommended
- Medication, Active
- **Medication, Adverse Effects**
- Medication, Administered
- Medication, Allergy
- **Medication, Discharge**
- Medication, Dispensed
- Medication, Intolerance
- Medication, Order
- **Patient Care Experience**
- Physical Exam, Order
- Physical Exam, Performed
- Physical Exam, Recommended
- Procedure, Adverse Event
- Procedure, Intolerance
- Procedure, Order
- Procedure, Performed
- Procedure, Recommended
- Provider Care Experience
- Provider Characteristic
- Risk Category/Assessment
- Substance, Administered
- Substance, Adverse Event
- Substance, Allergy
- Substance, Intolerance
- Substance, Order
- Substance, Recommended
- Symptom
- Transfer From
- Transfer To

Key: Used in MU-2 Measures, Proposed for Removal